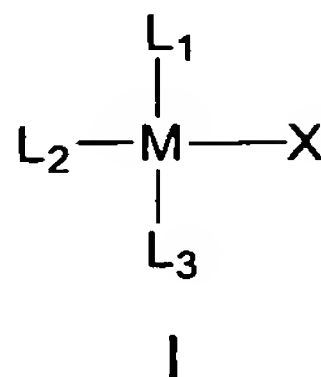


AMENDMENTS TO THE CLAIMS

1. (Original) A complex of formula I



wherein

M is Ca, Mg, Ba or Sr;

$L_1$  is selected from  $R^1O$ ,  $R^2S$ ,  $R^3R^4N$ ,  $R^5R^6P$ , a substituted or unsubstituted cyclopentadienide and a substituted or unsubstituted pyrazolyl group, where  $R^{1-6}$  are each independently H or hydrocarbyl;

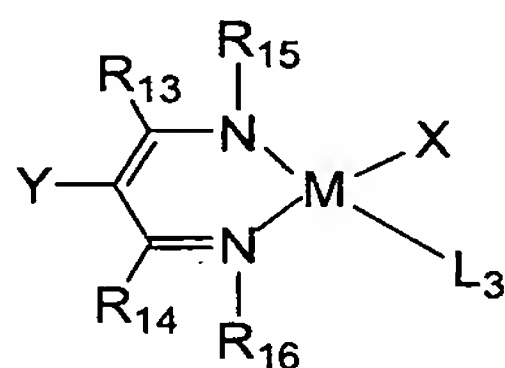
$L_2$  is selected from  $R^7R^8O$ ,  $R^7R^8S$ ,  $R^7R^8R^9N$ ,  $R^7R^8C=NR^9$ ,  $PR^7R^8R^9$ , or a substituted or unsubstituted heterocycle containing one or more O, N or S atoms, where  $R^{7-9}$  are each independently H or a hydrocarbyl group; or  $L_1$  and  $L_2$  are linked to form a bidentate ligand;

$L_3$  is absent or is a solvent molecule, or a neutral ligand as defined for  $L_2$ , wherein  $L_3$  may be the same or different to  $L_2$ ; or  $L_3$  is linked to a further metal centre; or  $L_1$ ,  $L_2$  and  $L_3$  are linked to form a tridentate ligand; and

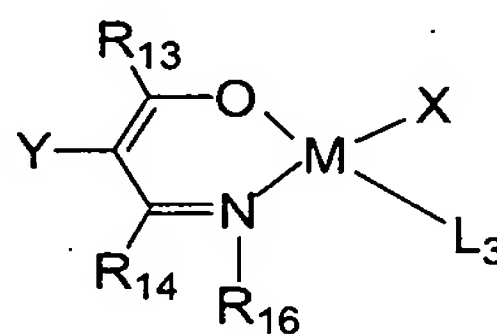
X is an alkyl group, an aryl group, an amide group, an aryloxide or an enolate group of formula  $R^{10}R^{11}C=CR^{12}O^-$ , wherein  $R^{10-12}$  are each independently H or hydrocarbyl;

with the proviso that when  $L_1$  and  $L_2$  are  $\{HC(C(CH_3)=N-2,6-^iPr_2C_6H_3)_2\}$  and M is magnesium, X is other than Me or  $^tBu$ .

2. (Original) A complex according to claim 1 wherein  $R^1$  and  $R^2$  are hydrocarbyl, and  $R^{3-6}$  are H or hydrocarbyl.
3. (Original) A complex according to claim 1 wherein  $R^1$  and  $R^2$  are each independently selected from branched or unbranched alkyl, branched or unbranched alkenyl, or aryl, each of which may be substituted or unsubstituted.
4. (Original) A complex according to claim 1 wherein  $L_1$  and  $L_2$  are linked to form a bidentate ligand selected from a beta-diketiminate and a beta-ketoiminate.
5. (Original) A complex according to claim 4 of formula II or III



II



III

wherein

Y is H, hydrocarbyl or CN;

$R^{13-16}$  are each independently selected from H and hydrocarbyl; or Y and

$R^{13}$  are linked to form a hydrocarbyl group; and

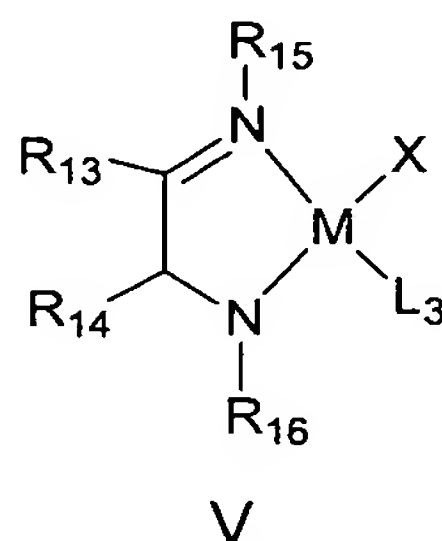
$L_3$  absent or as defined in claim 1.

(Original) A complex according to claim 5 wherein

Y is selected from H, CN, alkyl, aryl, haloalkyl or heteroalkyl;

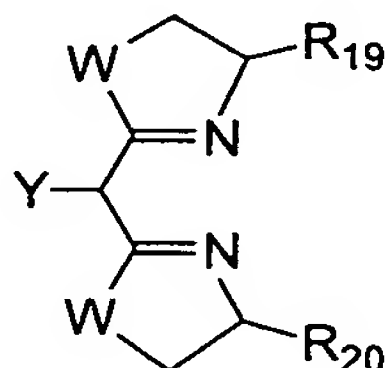
$R^{13-16}$  are each independently selected from alkyl, aryl, heteroalkyl, haloalkyl, cycloalkyl and a heterocyclic ring containing at least one O, N or S atom; or Y and  $R^{13}$  are linked to form an aryl group; and  $L_3$  is absent or is selected from  $R^7R^8O$ ,  $R^7R^8S$ ,  $R^7R^8R^9N$ ,  $R^7C=NR^8$ ,  $PR^7R^8R^9$ , thiophene and tetrahydrofuran, where  $R^{7-9}$  are each independently H or a hydrocarbyl group.

6. (Presently Amended) A complex according to claim 1 of formula V



wherein  $R^{13-16}$  are ~~as defined in claim 5 or claim 6~~ each independently selected from H, hydrocarbyl, alkyl, aryl, heteroalkyl, haloalkyl, cycloalkyl, and a heterocyclic ring containing at least one O, N or S atom, and where  $R^{13}$  and  $R^{15}$  are optionally linked to form an aryl group.

8. (Original) A complex according to claim 1 wherein  $L_1$  and  $L_2$  form a bidentate ligand of formula VIII



VIII

wherein

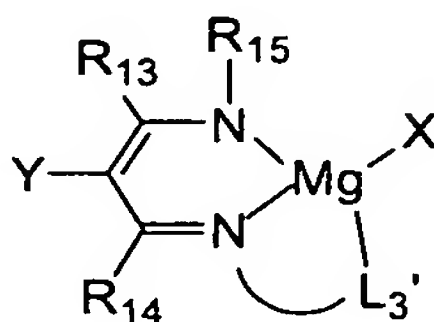
Y is as defined above;

W is O, NH, NR' or CH<sub>2</sub> where R' is hydrocarbyl; and

R<sup>19-20</sup> are as defined for R<sup>13-16</sup> above.

9. (Presently Amended) A complex according to ~~any one of claims 1 to 3~~ claim 1 wherein  $L_1$ ,  $L_2$  and  $L_3$  are linked to form a tridentate ligand.
10. (Original) A complex according to claim 9 wherein  $L_1$ ,  $L_2$  and  $L_3$  are linked to form a tridentate ligand selected from a beta-diketiminato with a pendant donor group, and a Schiff base derivative with a pendant donor arm.

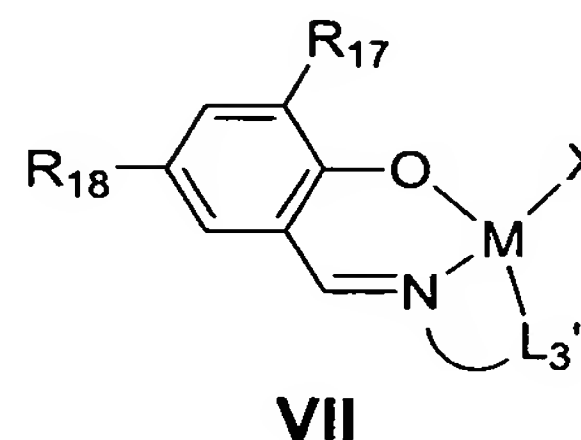
11. (Presently Amended) A complex according to claim 10 of formula VI



VI

wherein L<sub>3</sub>' is ~~defined as for~~  
~~L<sub>3</sub> in claim 1~~ is a solvent  
molecule or a neutral ligand,  
and is linked to the nitrogen  
of the bidentate ligand via a  
linker group.

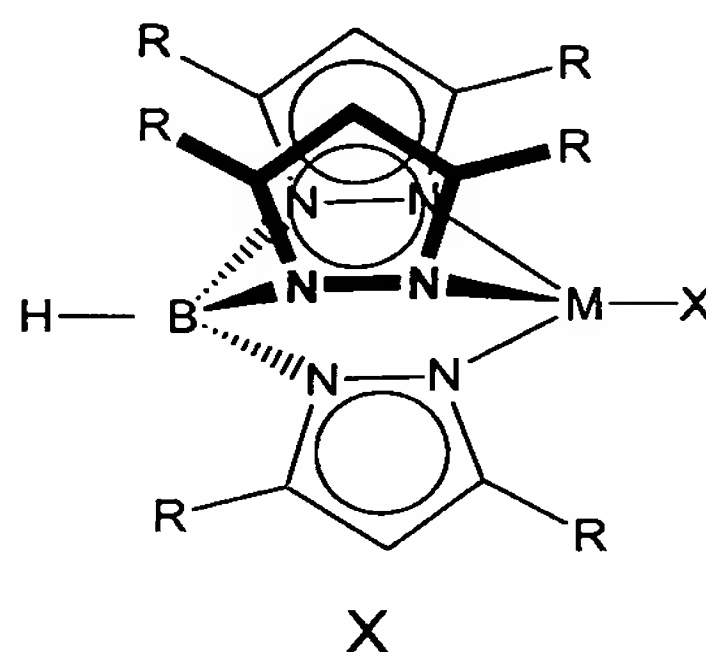
12. (Presently Amended) A complex according to claim 10 wherein said complex is of formula VII



wherein  $L_3'$  is defined as for  $L_3$  in claim 1 a solvent molecule or a neutral ligand and is linked to the nitrogen of the bidentate ligand via a linker group, and  $R^{17-18}$  are as defined for  $R^{13-16}$  above each independently selected from H and hydrocarbyl.

13. (Presently Amended) A complex according to claim 11 ~~or claim 12~~ wherein the linker group is  $(CH_2)_n$  where n is 0-6, an arylene group, or  $SiR_2$ , where R is hydrocarbyl.

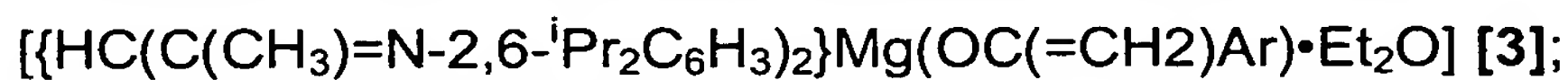
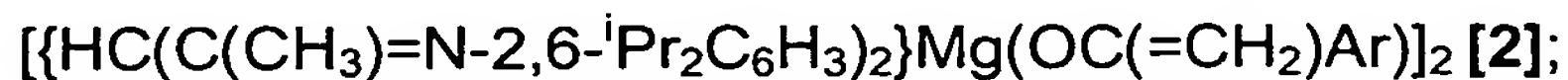
14. (Original) A complex according to claim 1 of formula X



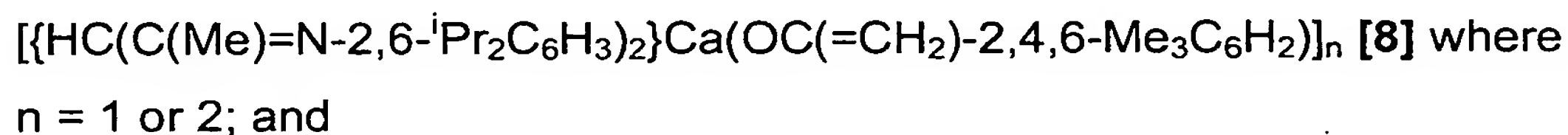
wherein each R is independently H or a hydrocarbyl group.

15. (Presently Amended) A compound according to ~~any preceding~~ claim 1 wherein X is an alkyl group
16. (Original) A compound according to claim 15 wherein X is <sup>i</sup>Pr.
17. (Presently Amended) A compound according to ~~any one of claims 1 to 14~~ claim 1 wherein X is an amide group.
18. (Original) A compound according to claim 17 wherein X is NPr<sup>j</sup><sub>2</sub>.
19. (Presently Amended) A compound according to ~~any one of claims 1 to 14~~ claim 1 wherein X is an enolate group of formula R<sup>10</sup>R<sup>11</sup>C=CR<sup>12</sup>O-, wherein R<sup>10</sup> and R<sup>11</sup> are H and R<sup>12</sup> is an aryl group.
20. (Original) A compound according to claim 19 wherein X is -OC(=CH<sub>2</sub>)Ar, wherein Ar is 2,4,6,-Me<sub>3</sub>C<sub>6</sub>H<sub>2</sub>.
21. (Presently Amended) A complex comprising a dimer of a complex according to ~~any preceding~~ claim 1.

22. (Original) A complex according to claim 1 selected from the following:

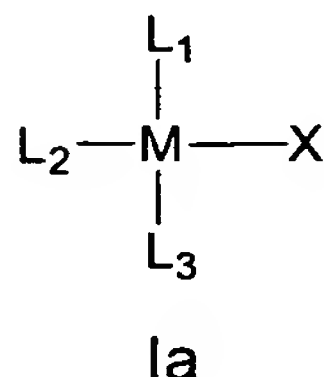


wherein Ar = 2,4,6,-Me<sub>3</sub>C<sub>6</sub>H<sub>2</sub>;





23. (Presently Amended) ~~Use of~~ A method of initiating polymerization comprising introduction of a complex of formula Ia as a polymerisation initiator,



wherein

M is Ca, Mg, Ba or Sr;

$L_1$  is selected from  $R^1O$ ,  $R^2S$ ,  $R^3R^4N$ ,  $R^5R^6P$ , a substituted or unsubstituted cyclopentadienide, and a substituted or unsubstituted pyrazolyl group, where  $R^{1-6}$  are each independently H or hydrocarbyl;

$L_2$  is selected from  $R^7R^8O$ ,  $R^7R^8S$ ,  $R^7R^8R^9N$ ,  $R^7R^8C=NR^9$ ,  $PR^7R^8R^9$ , and a substituted or unsubstituted heterocycle containing one or more O, N or S atoms, where  $R^{7-9}$  are each independently H or a hydrocarbyl group; or  $L_1$  and  $L_2$  are linked to form a bidentate ligand;

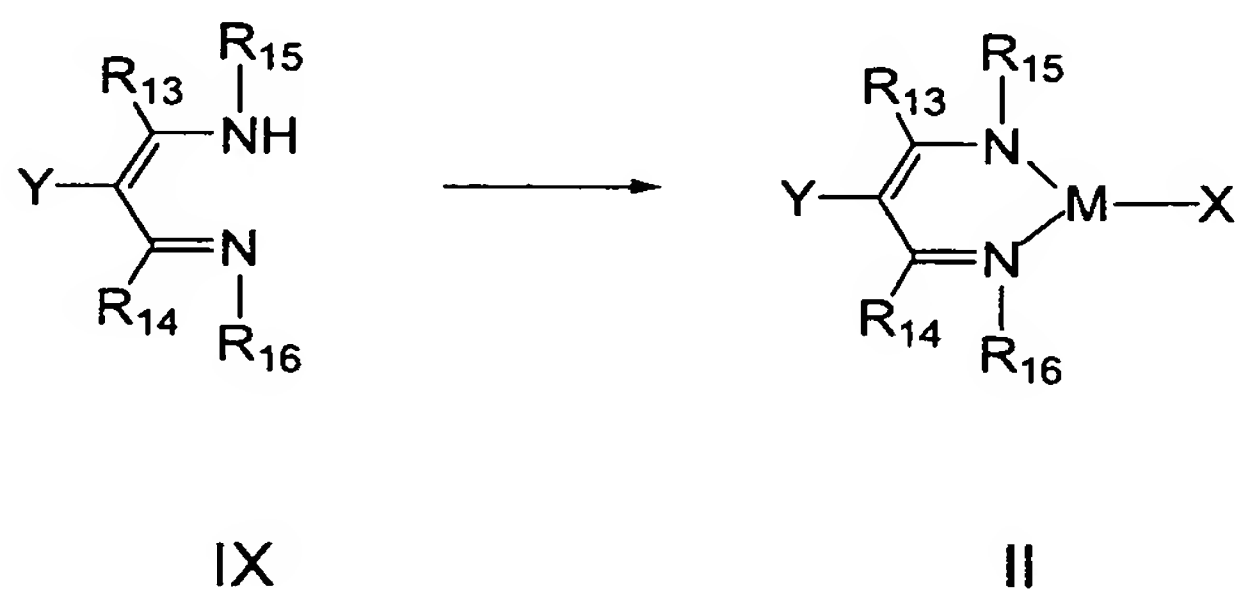
$L_3$  is absent or is a solvent molecule, or a neutral ligand as defined for  $L_2$ , wherein  $L_3$  may be the same or different to  $L_2$ ; or  $L_3$  is linked to a further metal centre; or  $L_1$ ,  $L_2$  and  $L_3$  are linked to form a tridentate ligand; and

X is an alkyl group, an aryl group, an amide group, or an enolate group of formula  $R^{10}R^{11}C=CR^{12}O^-$ , wherein  $R^{10-12}$  are each independently H or hydrocarbyl;

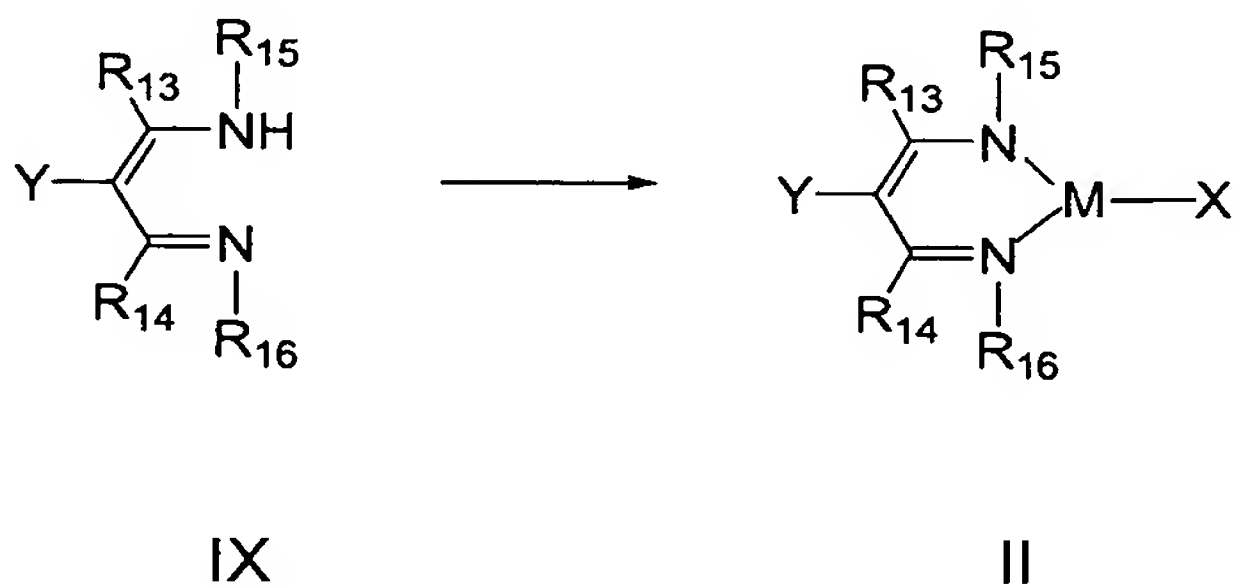
with the proviso that when  $L_1$  and  $L_2$  are  $\{HC(C(CH_3)=N-2,6-^iPr_2C_6H_3)_2\}$ , M is magnesium, X is other than Me or  $^tBu$ .

24. (Presently Amended) ~~Use according to~~ The method of claim 23 in comprising the polymerisation of acrylate and/or alkyl acrylate monomers.
25. (Presently Amended) ~~Use according to~~ The method of claim 23 or 24 which further comprises comprising the use of a chain transfer reagent.
26. (Original) A process for the polymerisation of acrylate and/or alkylacrylate monomers, said process comprising contacting an initiating amount of a complex of formula Ia as defined in claim 23 with an acrylate and/or an alkylacrylate monomer in the presence of a suitable solvent.
27. (Original) A process according to claim 26 wherein the ratio of monomer to the complex is between 10:1 and  $10^6$ :1.
28. Cancel.
29. A composition comprising an acrylate and/or an alkylacrylate monomer and a complex of formula Ia as defined in claim 23.
30. A composition comprising poly(alkylacrylate) and poly(alkylmethacrylate) or copolymers thereof, and a complex of formula Ia as defined in claim 23.

31. A process for preparing a complex of formula II as defined in claim 5, where X is alkyl, said process comprising reacting a compound of formula IX with (a)  $n\text{BuLi}$ , and (b)  $\text{XMgCl}$



32. A process for preparing a complex of formula II as defined in claim 5, where X is alkyl, said process comprising reacting a compound of formula IX with  $\text{MgX}_2$



33. A process for preparing a complex of formula II, as defined in claim 5, where X is an enolate group of formula  $\text{R}^{10}\text{R}^{11}\text{C}=\text{CR}^{12}\text{O}^-$ , said process comprising reacting the product obtained from the process of claim 31 or claim 32 with a compound of formula  $\text{HR}^{10}\text{R}^{11}\text{C}-\text{C}(\text{O})\text{R}^{12}$ .

34. A method for producing polymethacrylate having greater than 75% syndiotacticity, said method comprising contacting methacrylate monomer with a complex of formula Ia as defined in claim 23 in the presence of a suitable solvent.
35. A method according to claim 34 which is carried out at a temperature in excess of  $-40^{\circ}\text{C}$ .